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PATENT SPECIFICATION

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COMPLETE SPECIFICATION

Improvements in Aqueous Liquids for use in the Textile, Fur and Leather Industries

We, HENKEL & OER G.M.B.H., a German Company, of 67, Heyestrass, Düsseldorf - Holthausen, Germany, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

It has been found that it is possible to improve the surface-active properties of aqueous liquids for use in the textile, fur and leather industries by adding to the said liquids, substances of the general formula:—

15 $R.X.R^1.COOH$

where R signifies a higher aliphatic or cycloaliphatic alkyl residue of at least eight carbon atoms, R^1 a lower aliphatic residue of not more than six carbon atoms and X oxygen, sulphur or sulphonyl.

The higher aliphatic or cycloaliphatic alkyl residue R of at least eight carbon atoms may be of a saturated or unsaturated nature. It may consist for example of the dodecyl or the tetradecyl residue.

The lower aliphatic residue R^1 of not more than six carbon atoms may be constituted for example by the methane, ethane or propane residue.

It is known that the technical use of soap in hard water meets with difficulties on account of the carboxylic acids being precipitated as insoluble compounds by the alkaline earth salts contained in the hard water.

The compounds employed for the purpose of the present invention do not, however, have this disadvantage, since they are remarkably stable to the substances which cause hardness in water and more particularly to lime salts.

According to the invention, therefore, 45 lower aliphatic carboxylic acids substituted at the end carbon atom by higher aliphatic alkoxy, alkylmercapto or alkylsulphonyl residues are particularly useful in all cases in which the surface tension of aqueous liquids for use in the textile, fur and leather industries is to be reduced. The advantageous properties of the said substances are exhibited in a particularly

pronounced manner when the liquids are heated.

Besides the said carboxylic acids, their substitution products are also eminently suitable for the same purposes. In the general formula just given, therefore both R and R^1 may be substituted by groups such as hydroxy groups, ether or ester groups.

Preferably, the said compounds are employed for the purposes specified in the form of their soluble salts of for example, sodium, potassium and triethanolamine.

The said compounds are utilised in the textile, fur and leather industries, for example in the production of froth or lather, and as levelling, impregnating, stabilising, dissolving, and distributing agents.

The said substances may be employed in admixture with other substances, for example alkaline agents and per-compounds which may be added to the treatment baths.

EXAMPLE.

The sodium salt of dodecyl-mercaptoacetic acid in a suitable concentration is added as a soap substitute to the usual treatment baths for washing, pre-wetting and bucking textiles. In doing this, it is not necessary to employ softened water but ordinary works water may be employed without danger of the fabric being spotted or streaked, due to the formation of troublesome lime salts. In the same way, the said compound may be employed in the dyeing of cotton.

In a similar manner as the sodium salt of dodecyl-mercaptoacetic acid the soluble salts of the following substances may also be employed; dodecyl-sulphonyl acetic acid obtained by oxidation of dodecyl-mercapto acetic acid with hydrogen peroxide, and furthermore hydroxyacetic acid, etherified with the mixture of alcohols obtained by the reduction of coconut oil fatty acids. This mixture of compounds is obtained for example by known processes by the reaction of the chloromethylethers obtained from the coconut oil fatty alcohols, formaldehyde and hydrochloric acid, with potassium cyanide, followed by saponification of the

resulting nitrile mixture. In the same way, other corresponding compounds may be employed.

For the preparation of certain of the sulphur compounds which may be employed, for example dodecyl-mercapto acetic acid, the processes described in our prior specifications numbered 401,118 and 412,306 respectively may be employed when convenient.

Having now particularly described and ascertained the nature of our said invention and in what manner the same is to be performed, we declare that what we claim is:—

1. A process of improving the surface-active properties of aqueous liquids for use in the textile, fur and leather industries, characterised by adding to the said liquids substances of the general formula $R.X.R^1$: COOH or their soluble salts, R denoting a higher aliphatic or cyclo-aliphatic alkyl residue of at least eight carbon atoms, R^1 a lower aliphatic alkyl residue of not more than six carbon atoms, and X oxygen, sulphur or sulphonyl.

2. A process according to claim 1 characterised in that lower aliphatic carboxylic acids substituted by higher aliphatic alkyloxy residues, or the soluble salts of such acids are employed.

3. A process according to claim 1, characterised in that lower aliphatic carboxylic acids, substituted by higher aliphatic alkyl-mercapto residues, or the soluble salts of such acids are employed.

4. A process according to claim 1, characterised in that lower aliphatic carboxylic acids, substituted by higher aliphatic alkyl-sulphonyl residues, or the soluble salts of such acids are employed.

5. The process of improving the surface-active properties of aqueous liquids for use in the textile, fur and leather industries, substantially as described.

Dated this 2nd day of November, 1933.

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